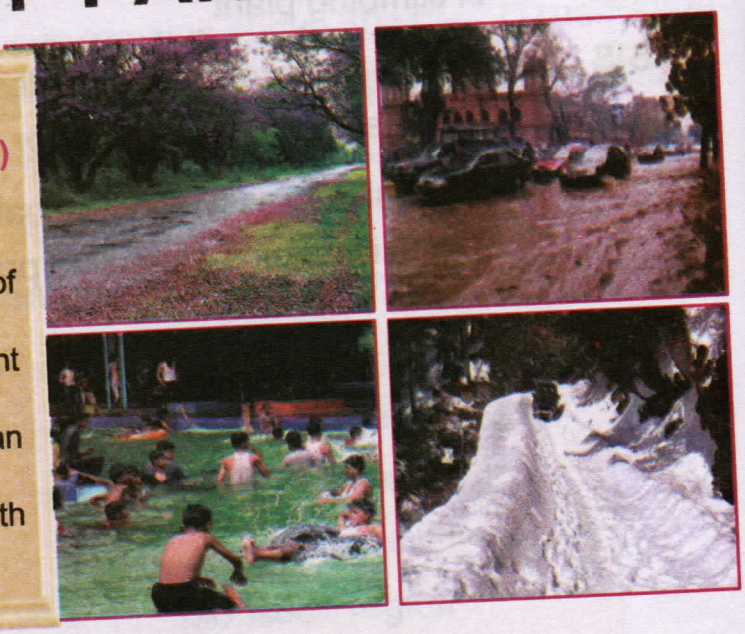
7

CLIMATE OF PAKISTAN



This is a 12 days lesson (periods including home work)

After completing this lesson, you will be able to:

- Describe the nature and extent of Seasonal and Regional Diversity.
- Describe the Seasons and their salient features.
- Identify the Climatic Regions of Pakistan and their major characteristics.
- Relate Climatic Conditions with Vegetation and Human Activities.

Reading

We know the Landscape of Pakistan varies in all areas of the country that gives it different Physical Regions. This includes coasts, deserts, plains, plateaus, hilly areas and high mountains. Starting from Sindh-Baluchistan coastal areas of the South, the plains of Sindh-Punjab, continue till high mountains of the north, where world's three famous mountains meet. The Himalayas, Hindu Kush and Karakoram are very high above the sea level. Naturally climate is totally different in these wide areas of the country.

As a whole, the climate of Pakistan is greatly influenced by its location, which is sub-tropical. Most parts of the country experience high temperature from March up to July. Secondly its latitudinal extent which extends (from 23° 35' to 37° 05') and its closeness to Tropic of Cancer keeps the temperatures high in the South. Thirdly the presence of Arabian Sea along the southern coast also influences the climate of Pakistan.

Before taking of climate, a study of changing season in the country is of much interest to us.

7.1 SEASONS

Season as we know are associated with the duration of the daylight that affect intensity of sunshine. Broadly there are four season in a year; Spring, Summer, Autumn and Winter. In Pakistan we experience warm in summer months and cool in winters. Rains occur in between these two periods bringing in a third variety. Effects of location, height and nearness to water bodies as well as desert are also important. The seasons affect everyday life of people all over the world.

(i) Seasonal and Regional Diversity

Before taking note of seasons in Pakistan, let us glance at its variety of landscapes. In fact it is the variety of landscape that causes many variations in its seasons.

In Pakistan, topographical features range from lofty mountains in the north to the coastal plains in the south (Map 7.1). The plains remain very hot in summer, with temperature above 32°C. The western mountains experience warm to cool summers, with temperature below 31°C. The high mountains areas like the Karakorum, the Hindu Kush and the Himalayas record temperature below freezing point during greater part of the year. In fact many of their peaks are permanently covered with snow.

Coastal areas of Pakistan experience climate which is neither warm nor cool. Here temperature remains at a tolerable level throughout the year. The nearby oceans remain warmer than the land in winter and relatively cooler in summer. Thus we notice little change of season in Karachi. The interior areas of Sindh and Punjab which mainly consists of plains experience extreme of temperature. These areas experience hot and cool to cold season during the year. The two

Fig. 7.1: Seasonal Diversity

seasons experience by rains. After summers monsoon rains arrive in the Punjab from the East. During winters, western disturbances bring rainfall in western parts of the country. We know in Islamabad it rains both in summer and winter.

Simply stated, we notice a variety of seasons in the country as a whole. Also the seasons vary from region to region. When it is hot in southern region, the northern regions of Pakistan enjoy cool summer. This variety of seasons is an outcome of diversity of landscape in the country.

(ii) Seasons and their Salient Features

Revolution of the Earth around the Sun produces seasons. Each season has its own specific climatic conditions. For example in December, January we experience cold climatic conditions while during April to June hot climatic conditions prevail. In between these two, when days and nights are equal, we get mild temperatures. Pakistan lies in the temperate region therefore like other countries of South Asia; it has its following four seasons.

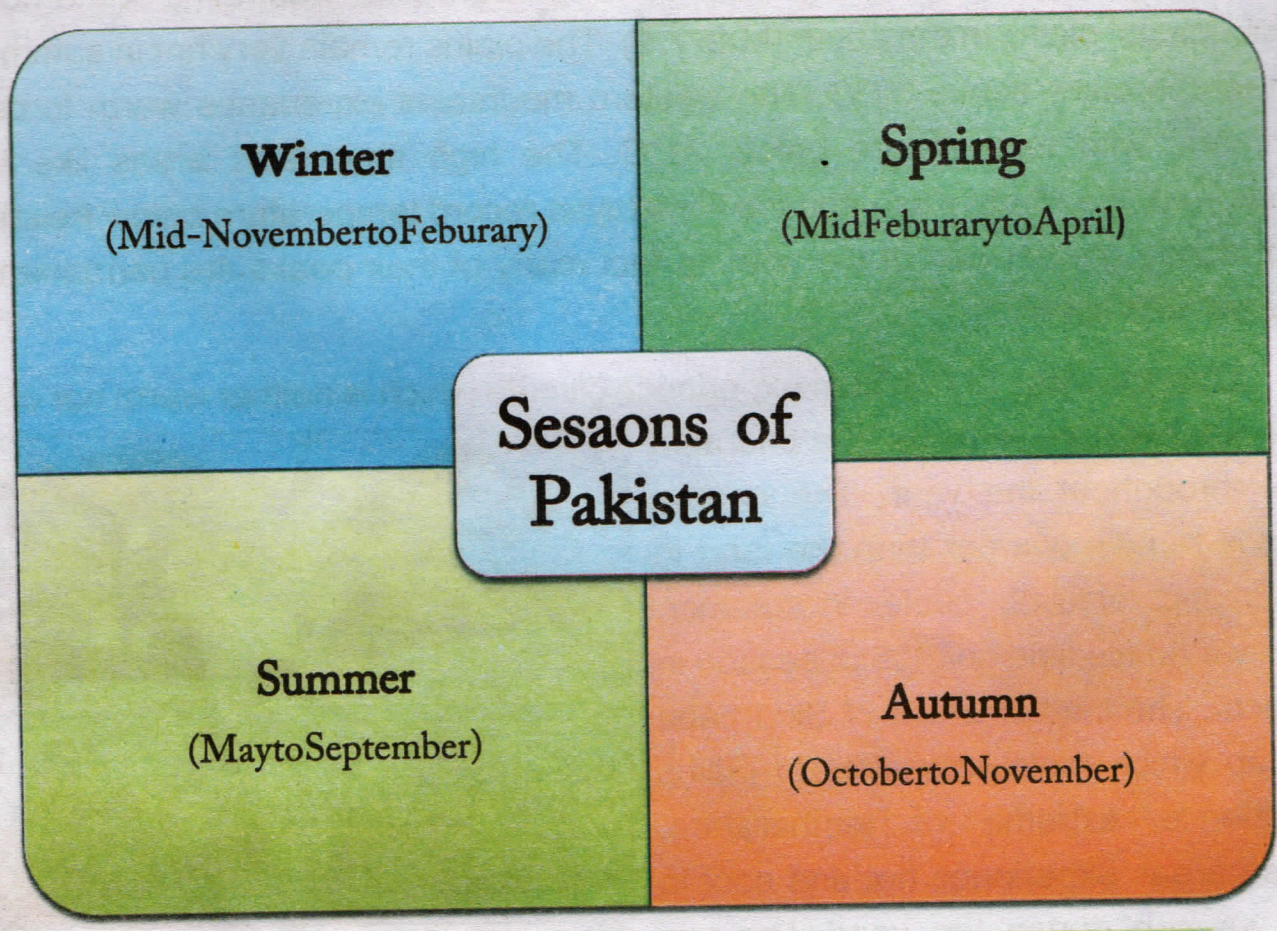


Fig. 7.2: Seasons of Pakistan

(iii) Winter Season (Mid-November to February)

Fig. 7.3: Winter Season

The winter season starts in most parts of the country in the month of November. The temperature remains 5 to 15 °C during this season. Winter starts earlier in the Northern mountain areas because they are high above the sea level. Here, soon the temperature decreases below freezing point, and snow fall is a common phenomenon. Winter season is longer in these areas as compared to the plain areas of Pakistan. The Northern plain areas also experience cold climate because they are away from Arabian Sea.

The Winter season receives some amount of rainfall from cyclones that falls in December and January. The amount of rainfall decreases from west (*Khyber Pakhtunkhwa* and Baluchistan) towards East (Punjab and Sindh).Let us note lowest temperatures of important cities here. Islamabad (11.5°C), Karachi (19.5°C), Lahore (14.2°C), Peshawar (13.0°C) and Quetta (5.1°C). Sometimes for a day or two, temperature may fall below minus in Quetta and Islamabad.

In the first January 2014, temperature in Islamabad fell to minus 4°C. Such low temperature was earlier experience some 40 years ago.

(iv) Spring Season (Mid February to April)

Fig.7.4: Spring Season

Winter is followed by Spring season. From mid of February the temperature starts increasing up to a tolerable level. But it soon reaches up to 35 °C. Usually this season remains dry. Sometime in the months of April – May (due to local heating of land area), a low pressure is created which brings dust storms with little rain in plains of Punjab

and Sindh. Thunderstorms sometimes bring some rainfall to the northern areas (Khyber Pakhtunkhwa and Gilgit-Baltistan).Since this season is neither cool nor hot, therefore, gives rise to blossoming new flowers and plants.

(v) Summer Season (May to September)

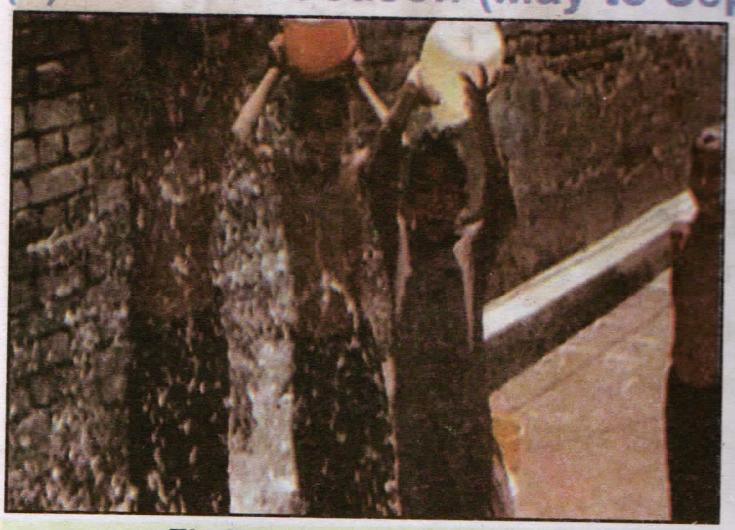


Fig.7.5: Summer Season

The summer season starts in most parts of Pakistan from the month of May when temperature increases throughout the country. During the months of May-June daily temperature varies between 40°C and 46°C.Hot winds blow in the plain areas. These are locally called "*Loo*". During the month of June, Jacobabad experiences temperatures (up to 53°C) which are highest not only in Pakistan but also in South Asia.

During summer months high pressure prevails over Bay of Bengal and Arabian Sea. So winds start blowing towards plains of South Asia. When these moisture laden winds are blocked by Himalayas Mountains, they rise upward. These winds attain the condensation level and bring rainfall.

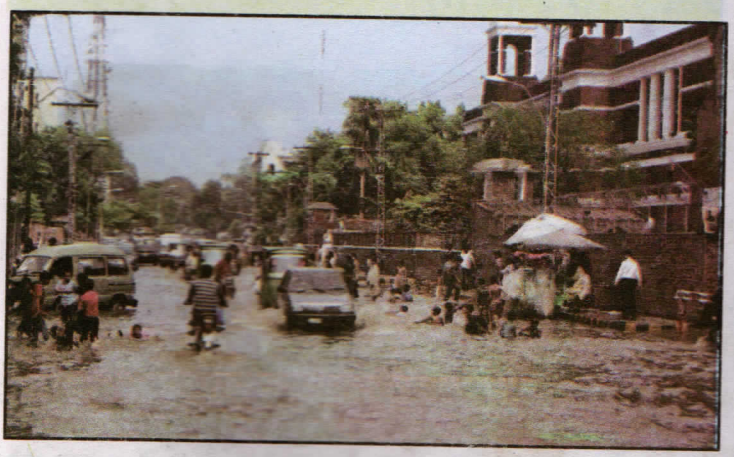


Fig.7.6: Rain on the Road

In the months of July and August the Monsoon rains arrive over the plains of the Punjab. The amount of rainfall gradually decreases from east towards south of Pakistan. In some years floods are caused due to Monsoon rains in mountainous regions which cause devastation in plain areas of Khyber Pakhtunkhwa, Punjab and Sindh. In many towns and cities life comes to stand still. Water is piled up on roads and streets. Northern areas, particularly Murree, Swat, Naran, Kagan, Chitral and Dir have low temperatures due to height.

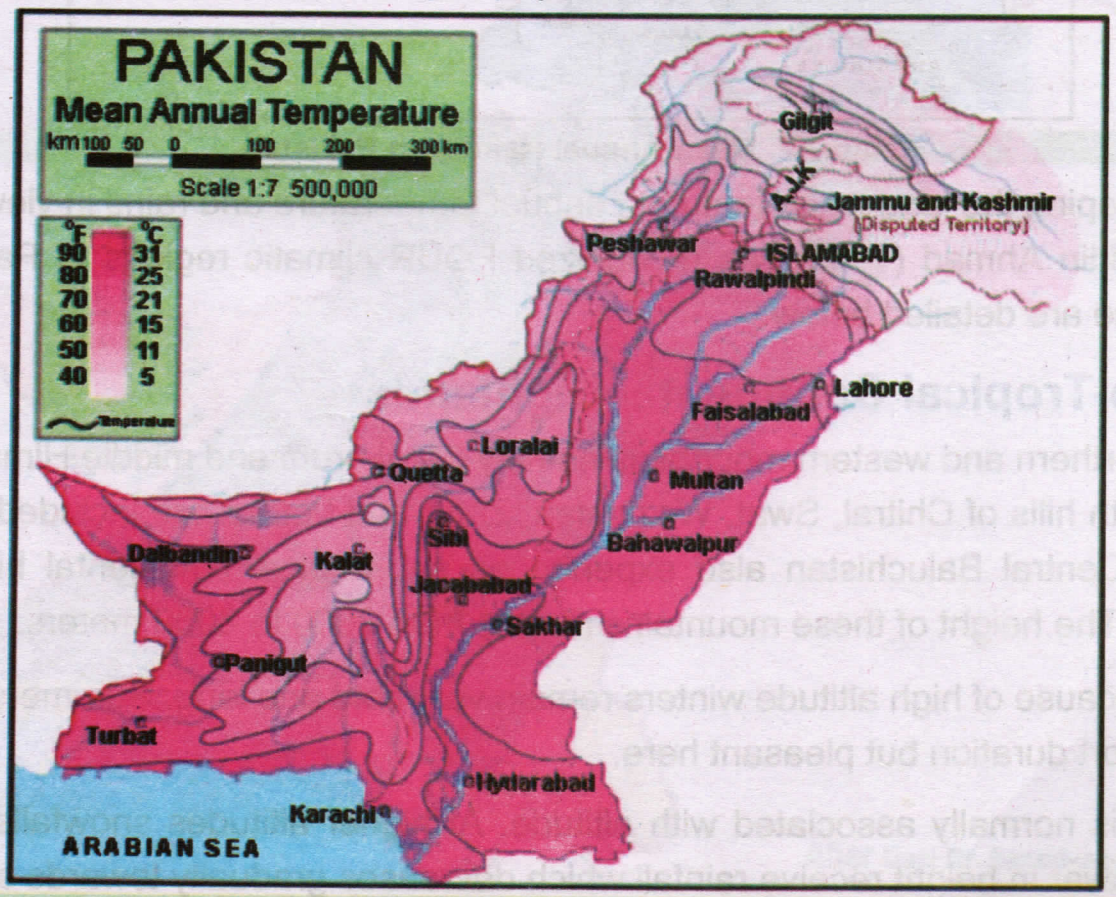
(vi)Autumn Season (October to November)

Autumn in Pakistan comes between the rainy and cold season. As the days becomes shorter in early October the land cools steadily. The rain of the previous months also plays its role in lowering the temperature in plain areas of Sindh and Punjab. Therefore, in this season pressure is high over the land and low over the sea. Now winds blow from land to sea. These winds are moisture less and do not bring rainfall. That's why October - November are the driest months in Pakistan. Autumn season is actually a signal for onset of winter season.

Fig.7.7: Autumn Season

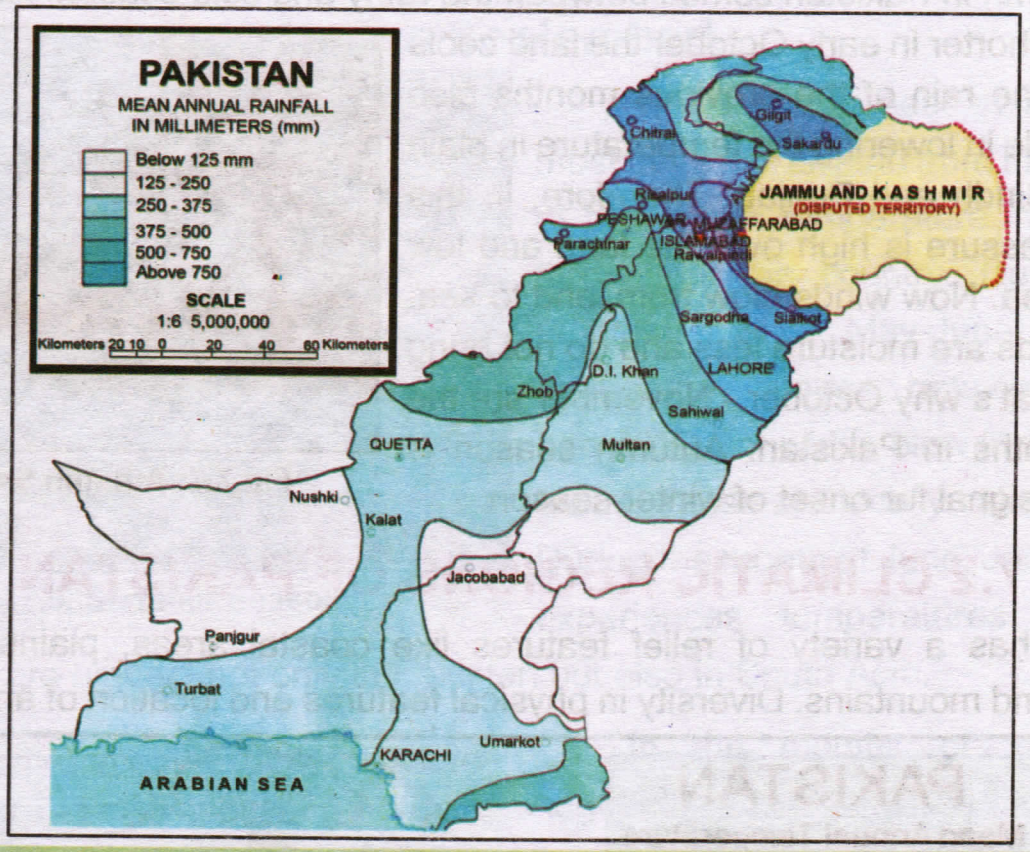
7.2 CLIMATIC REGIONS OF PAKISTAN

Pakistan has a variety of relief features like coastal areas, plains, deserts, plateaus and mountains. Diversity in physical features and location of an area with



Map.7.1: Mean Annual Temperature in Pakistan

respect to sea affects the climate. Pakistan belongs to the sub-tropical region of South Asia. This is the subtropical region of the earth. Mean annual temperature and mean annual rainfall are shown in the two maps here.



Map.7.2: Mean Annual Rainfall in Pakistan

Keeping the landscape features, annual temperature and rains in view, Kazi Saeeduddin Ahmad (1956) has recognized FOUR climatic regions in Pakistan. The same are detailed below.

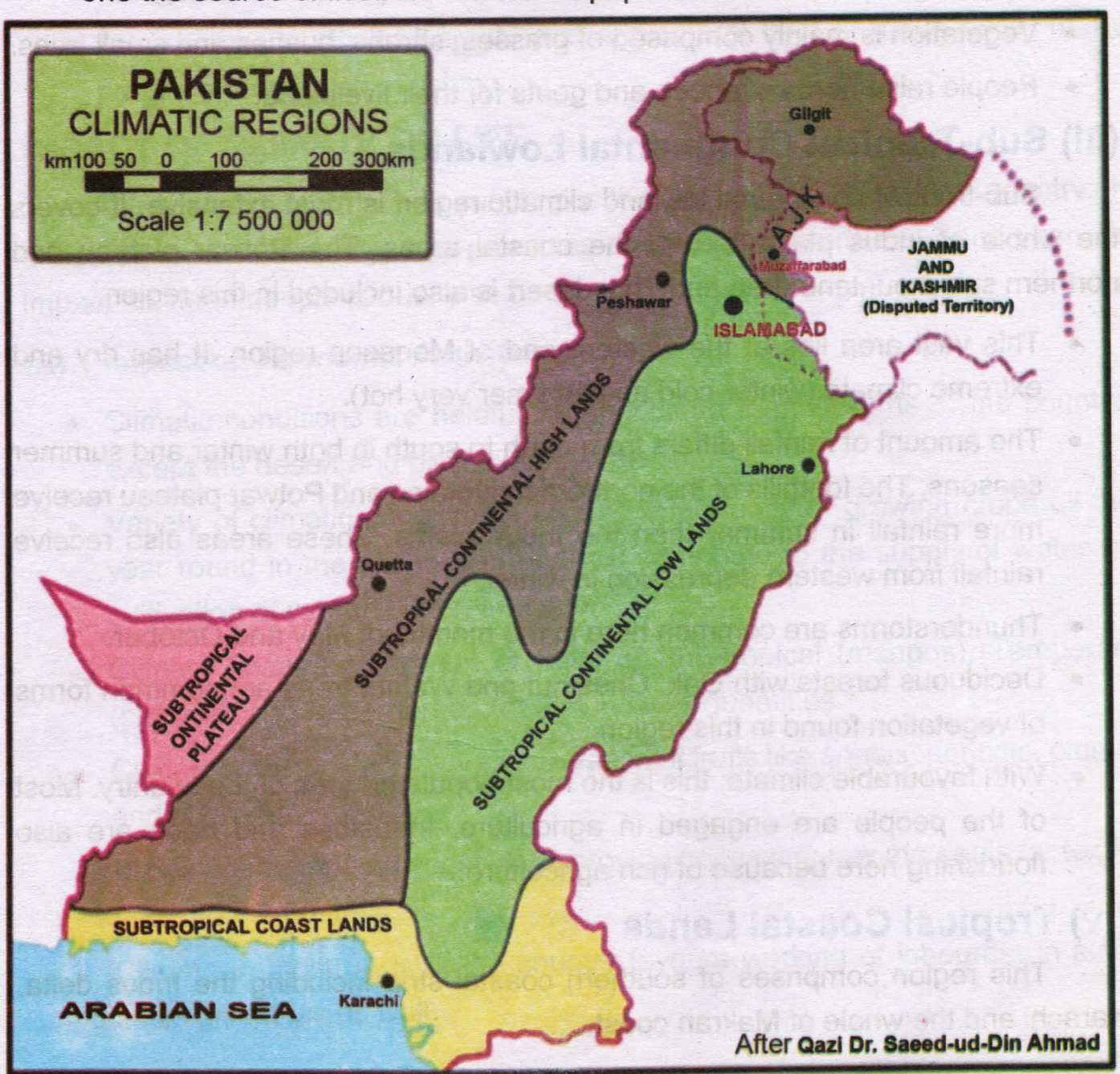
(i) Sub-Tropical Continental Highlands

Northern and western mountains namely Karakorum and middle Himalayas, along with hills of Chitral, Swat, Waziristan, Zhob and Loralai are included in this region. Central Baluchistan also experiences sub-tropical continental highland climate. The height of these mountains ranges from 2000 to 8000 meters.

- Because of high altitude winters remain very cold and long. Summers are of short duration but pleasant here.

Rainfall is normally associated with altitude. At higher altitudes snowfalls, while places lower in height receive rainfall which decreases gradually towards south.

- Temperature conditions also vary from north to the west depending upon the height. Summers are short, mild and wet in northern mountains but western mountains are dry.
- The vegetation over the mountains is evergreen. Coniferous trees like Deodar, Kail, Fir and Cheer provide valuable timber.
- Most people of this region are engaged with tree cutting while tourism is also one the source of livelihood of native population.



Map7.3: The Climatic Region of Pakistan

(ii) Sub-Tropical Continental Plateaus

This type of climate mainly prevails in north- western Balochistan.

- It is very hot and dry. However Southwestern Baluchistan receives rainfall in winter season.
- Extreme heat, dryness and dust storms (May to September) are the main characteristics of this climatic region.
- Here Nokkundi with 5 cm of rainfall is the driest place in Pakistan.
- Vegetation is mainly comprised of grasses, shrubs, bushes and small trees.
- People raise herds of sheep and goats for their livelihood.

(iii) Sub-Tropical Continental Lowlands

Sub-tropical continental lowland climatic region is most extensive. It covers the whole of Indus plains except the coastal areas. The Potwar plateau and northern sub-mountane area and Thal desert is also included in this region.

- This vast area lies at the western end of Monsoon region. It has dry and extreme climate (winter cold and summer very hot).
- The amount of rainfall differs from north to south in both winter and summer seasons. The foothills of the northern mountains and Potwar plateau receive more rainfall in summer than the Indus plains. These areas also receive rainfall from western depression in winter.
- Thunderstorms are common here in the months of May and October.
- Deciduous forests with Oak, Chestnut and Walnut trees are common forms of vegetation found in this region.
- With favourable climate, this is the most populated area of the country. Most of the people are engaged in agriculture. Industries and trade are also flourishing here because of rich agriculture.

(iv) Tropical Coastal Lands

This region comprises of southern coastal strip including the Indus delta, Karachi and the whole of Makran coast.

- The climate is characterised by sea breezes throughout the year. Due to the effect of sea daily range of temperature is low.
- Temperature is moderate due to unequal heating and cooling of land and water.
- Rainfall varies in this region. From Karachi up to the Rann of Kutch, the coast experience most of the rainfalls in summer. On the Makran coast rain falls in winter.
- Mangroves are the dominating type of naturally vegetation.
- Away from the city of Karachi and agricultural land of Indus delta, many people are engaged in fishing.

IMPACT OF CLIMATE ON LIFE

Climate of Pakistan has much positive impact on life in the country. It encourages human energy and promotes outdoor hard work round the year. Its impact on life of people is briefly as under:

(A) Impact on Economic Activities

- Climatic conditions are helpful for agriculture in most parts of the country, except the desert and high mountain areas.
- Variety of climatic conditions provides opportunity of growing crops all the year round in the plains. Here canals contribute to the supply of water for cultivation of wheat, cotton and rice.
- Climate favours cultivation of fruits of Sub-tropical (mangos), Temperate (citruses) and Desert areas (dates) in large quantities.
- Climate of the valleys favours cultivation of fruits like apples, apricots, plums, and cherries.
- Crops like cotton and sugar-cane provide necessary raw materials for textile and sugar industries.
- Climate in most parts of the country favours working of labourers in small scale industries as well.

- Climate in Pakistan provides opportunity of working day and night.
- Impact of climate on Natural Vegetation has restricted growth of soft-wood trees. Valuable trees are available in the plains. But their area of growth is restricted because the land is used for agriculture here.

(B) Impact on Population

- Climate of Pakistan has a direct impact on density and distribution of population in the country. The plains are heavily populated. Harsh climate areas like deserts and cold mountains are much thinly populated.
- Impact of climate in Pakistan is much apparent in peoples dressing. Cotton dresses in hot areas and woollen dresses in cold areas.
- Diversity of climate has led to the construction of airy and flat-roofed houses in the warm areas. In the cold areas less ventilated and sloped-roof houses are constructed.
- Impact of climate on availability of water is much important in Pakistan. There is less rain in many areas of the country. However snowfall on the high mountains is a rich source of water for the rivers that flow across the country.
- Lastly, Global Warming is affecting the great reservoir of water that exists in the form of glaciers in Pakistan. Conservation of water thus must be made a habit by all of us.
- Pakistan is a large country indeed, both in area and population. Its diverse climate is a gift of nature for its people.

Exercise

Q. 1.Write long answers of the following questions in detail:-

i. Describe seasonal and regional diversity of the Climate of Pakistan.
ii. Explains the seasons of Pakistan and their respective characteristics.
iii. Identify major climatic regions of Pakistan and explain any one in detail.

Q. 2.Write short answers of the following questions:-

i. How climate affects life of the people living in coastal areas of Pakistan?
ii. What are the main activities of people living in arid areas?
iii. What are the activities of people living in northern areas of Pakistan?

iv. Write a note on the impact of climate on human activities.

v. Write note on autumn season in Pakistan.

Q. 3.Select the appropriate option among the following:-

i. The climate of Pakistan is influenced by its location which is;

A. Sub-tropical B. Polar

C. Equatorial D. Temperate

ii. Islamabad experience lowest temperature in the month of December.

A. 15.5°C B. 17.5°C

C.11.5°C D. 4.5 °C

iii. The *Potwar* plateau and *Thal* desert is included in

A. Sub-tropical plains B. Sub-tropical lowlands

C. Sub-tropical highlands D. Sub-tropical coastal plains

iv. Summer season in Pakistan remains from

A. April-June B. Oct.-Dec.

C. Jan.-March D. May-Sept.

Q. 4. Fill in the blanks with proper words.

i. In Pakistan climate has a great influence on the _____ of people.

ii. The main economic activity of the people of Makran coast is _____.

iii. The coastal climate is under the influence of _____.

iv. In Pakistan _____ is the driest place with very low rainfall.

v. The climate of Pakistan is influenced by its location which is near to _____.

Q. 5. Make the following statements as True or False:-

i. The coastal areas of Pakistan are Karachi, Thatta, Pasni, Makran and Ormara. **(True/False)**

ii. Sub-tropical continental lowland is the parts of upper and lower Indus Plain. **(True/False)**

iii. In Pakistan, vegetation and human activities are related to each other. **(True/False)**

iv. The height of the western mountains varies between 2000 to 4000 meters.

(True/False)

v. Kazi Saeeduddin Ahmad has recognized five climatic regions of Pakistan.

(True/False)

Q. 6. Match the following column:-

A	B
Climatic regions	mid-December to February
Coastal areas	Karachi
Winter season	Pasni, Makran and Ormara
Mild climate and low rainfall	July – August
Monsoon rains	Four

Activities

i. Students may be given a task to identify climatic regions on map of Pakistan.
ii. Students may be asked to prepare charts of seasons of Pakistan and paste them in class room
iii. Make a list of seasons experienced by you throughout the year, starting from January. Tell your class fellows about temperature, winds and rain/snowfall you have experienced in your city/town/village.
iv. Make a list of the economic activities carried out by people of your city/village and correlates each of it with the seasons of your area.
v. Look at table 1.2 of chapter 1. Now note the required data of Islamabad in the given column.

ISLAMABAD

Highest Temperature	Month	Lowest Temperature	Month
Lowest Rainfall	Month	Lowest Rainfall	Month

Glossary

ARID	Much dry; with little rainfall
IMPACT	Effect, influence
MANGROVES	Tropical ever green trees or shrubs, with thick intertwining roots along the coasts
SUBMOUNTANE	Low mountainous area
TOPOGRAPHICAL	Related to land features; high and low mountains, valleys, plateaus and plains
WESTERN DISTURBANCES	Cyclones coming from the west; that bring rain & thunder

Give the students better understanding about the difference between weather and climate.

- Ask students about their knowledge about different climatic zones of Pakistan and in which zone they live?
- Try to give students knowledge with visual aids like maps, videos and real images of different climates experienced in Pakistan.
- With the help of documentary and videos on climate of Pakistan, students can be given better understanding.